Changes in Breast Radiotherapy: Prone Positioning and Hypofractionation

Maria Fenton-Kerimian, APN-BC, OCN®, Olivier Maisonet, FNP-BC, OCN®, and Silvia C. Formenti, MD

Breast cancer management has drastically changed since the 1990s. Many patients with breast cancer now can opt to conserve their breast through a lumpectomy and radiation (breast conservation therapy), rather than a full mastectomy. Advances in the techniques of delivery and length of breast radiotherapy have been rapidly evolving. This article attempts to summarize some of those changes for nurses caring for patients with breast cancer during radiation therapy.

Breast Conservation Therapy

Fisher et al. (2002) reported evidence gathered during a 25-year period that showed BCT can be the appropriate therapy for women with breast cancer who have negative surgical margins. Women in this pivotal trial were treated with lumpectomy and radiotherapy over five weeks without increased recurrence rates, proving that lumpectomy followed by irradiation continues to be appropriate therapy for women with breast cancer. The historical trial confirmed the merit of breast conservation radiotherapy. Historically, breast radiation following lumpectomy always was delivered in the supine position, which has the patient lying face up; the prone position, however, involves the patient lying face down, sometimes with the hands behind the head or neck.

Radiotherapy Positioning

When patients are treated with breast radiotherapy in the traditional supine position, the patient lies face up, which exposes the heart and lung to radiation. However, the prone position involves the patient lying face down, which can spare the heart and lung.

FIGURE 1. Beam’s Eye View of the Treatment Field

Note. Yellow box shows the beam’s eye view of the treatment field. Images show the left-sided breast cancer (A) supine then (B) prone, demonstrating the sparing of the heart (blue) and the lung (brown).